ABSTRACT

The present invention is a noise attenuation system and related method for suppressing noise having a primary tone generated by a jet engine. An exciting sound wave generator is positioned within the nacelle of the jet engine at its inlet to generate an exciting sound wave having a primary frequency generally different from a frequency of the primary tone of the noise. The exciting sound wave is used to modulate the primary tone of the noise and, therefore, distribute sound energy of the noise from the primary tone to a broad range of side bands so that the amplitude of the primary tone of the noise is reduced. The exciting sound wave generator according to the preferred embodiments is a fence member exposed to the air flow entering the inlet of the nacelle, or an aperture defined in the inner wall of the nacelle to jet a air flow into the nacelle. The noise attenuation system avoids complicated noise attenuation devices used in an active noise control system for sensing the noise frequency and phase, and controlling the frequency and phase of the generated sound wave for a match.